

From: [McMillan, Teresa](#)
To: [Coltrain, Katrina](#); [Turner, Philip](#); [Barry Forsythe](#)
Cc: [Todd Downham](#); cradu@eaest.com; lvega_eaest.com
Subject: RE: Wilcox TO # 128 RI Approach
Date: Thursday, March 24, 2016 5:15:25 PM

To All,

Investigation Soil Sampling: It is usually cost prohibitive to sample 100% of the soil column, and so we proposed initially the same intervals that were indicated for incremental sampling. There is no hard and fast rule on how many samples to collect, rather samples are collected from representative intervals for the risk assessment and other purposes, and the sampling intervals are as many as required to reach the stakeholder agreement; more samples from each borehole will increase the confidence in the data. If there is indication that contamination is present at other intervals than those specified (olfactory, visual, PID readings), then the SAP would require field crew to bias the sampling interval toward the more contaminated horizon.

In this case, we have residential sampling with depths 0.0 – 2.0 ft bgs, and industrial/commercial, with qualifying sample depths from 0.0 - 10 ft bgs. The samples from 0-2 ft bgs will also be used for industrial/commercial scenario evaluation.

We have reviewed the ROST LIF logs and we did not see any particular pattern in the distribution of contamination. Some show contamination at the surface, some more contamination below 10 ft bgs, and just about anywhere in-between. Granted, the ROST LIF data have not been validated for correlation with the entire suite of COPCs, and a validation of the methodology will be one of the priority goals during Mobilization 1. Based on the historical data we have evaluated, the contamination will mostly be heavy fraction organics and metals.

A new proposed sampling scenario is as follows:

0.0 - 0.5 ft bgs – residential and construction scenarios

0.5 - 2.0 ft bgs – residential and construction scenarios

4.0 - 6.0 ft bgs – only for construction worker scenario

8.0 - 10.0 ft bgs – only for construction worker scenario

Total Depth – delineation/nature & extent – (a sample spanning 2 ft from the bottom of the boring above refusal)

Contingency Sample – If contamination is present. Sample collected from what appears to be most contaminated interval at a depth other than prescribed above. Interval determined based on PID, olfactory and visual observation.

The sample intervals will be homogenized for collection of sample aliquots, with the exception of the aliquot for VOC analysis, which will be collected from the core with as little disturbance as possible, no shallower than 2 inches bgs.

In addition to these samples, 1 sample will also be collected from the interval between 10 ft bgs and refusal in the borehole. This sample will be collected for evaluation of the potential of migration to

ground water. The criterion for collecting this sample below 10 ft bgs is olfactory, visual observation of staining, and PID readings. If no PID readings are recorded and no other evidence (olfactory, visual) of contamination exists, the sample will be collected at refusal. Of note, due to the contamination with heavy fraction hydrocarbons, we do not anticipate the PID readings to be definitively indicative of presence/absence of contamination.

Background: Background will be evaluated for metals and naturally-occurring radioactive materials. Determining which horizons are sampled for determination of background depends on the make-up of the subsurface, how homogeneous it is or not. We want to apply the correct background value to the appropriate metals concentrations in our site samples. Consequently, we have reviewed the borehole logs that were available for the 1999 investigation. Based on those logs, the lithology underneath the site is fairly uniform. Based on the responses to Katrina's email earlier today that background samples should be collected from 0.0 – 0.5 ft bgs, we wanted the team to confirm that they are in agreement that metal and NORM concentrations from samples collected from any of the intervals proposed above can be compared to the background determined from samples collected from 0.0 – 0.5 ft bgs.

There is a caveat to the conclusion that the subsurface is sufficiently homogeneous: we plan on collecting soil samples by hollow stem auger and Geoprobe under Mobilization 1 and ensure that staff are logging all samples in a consistent manner across the site. Subsurface homogeneity will be reevaluated based on the Mobilization 1 data; if it turns out that more than one horizon is present, additional sampling intervals may be proposed for background so like data are compared.

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From: Coltrain, Katrina [mailto:coltrain.katrina@epa.gov]
Sent: Thursday, March 24, 2016 11:53 AM
To: Turner, Philip <Turner.Philip@epa.gov>; McMillan, Teresa <tmcmillan@eaest.com>; Barry Forsythe <barry_forsythe@fws.gov>
Cc: Todd Downham <todd.downham@deq.ok.gov>; Radu, Cristina <cradu@eaest.com>; Vega, Luis <lvega@eaest.com>
Subject: RE: Wilcox TO # 128 RI Approach

Do this for soil sampling...can be used for N&E and HHRA and ERA.

0-6" (N&E, HH-resident and ECO)
6"-24" (N&E, HH-resident and ECO if needed)
2'-5' (N&E, HH-construction)
And TD (N&E, construction)

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Subject: Re: Wilcox TO # 128 RI Approach

Yes, I think that will be fine. Why did we decide to skip 2'-4'?

From: Coltrain, Katrina
Sent: Thursday, March 24, 2016 11:07 AM
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Subject: RE: Wilcox TO # 128 RI Approach

Phil, can we use the 6-24 interval for HH? It will be a homogenized sample collected from the entire length.

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Subject: RE: Wilcox TO # 128 RI Approach

To clarify the sample depth intervals – Do you want:

0-6"
6"-12"
12"-24"
4'-5'
And TD

Or

0-6"
6"-24"
4'-5'
And TD

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Cc: Todd Downham <todd.downham@deq.ok.gov>; McMillan, Teresa <tmcmillan@eaest.com>;
Radu, Cristina <cradu@eaest.com>; Vega, Luis <lvega@eaest.com>
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On #s 1, 3 & 4, I agree with Barry.

#2: You're right, we do not really expect to see them, but Like PCBs, I think a small percentage of samples should look for dioxins/furans to eliminate them as a risk factor. The process area probably did have some combustion activities which can generate dioxins/furans. I think 5%, like the PCBs, would be ok.

From: Barry Forsythe <barry_forsythe@fws.gov>
Sent: Thursday, March 24, 2016 5:36 AM
To: Coltrain, Katrina
Cc: Turner, Philip; Todd Downham; Teri Mcmillan (tmcmillan@eaest.com); cradu@eaest.com;
lvega@eaest.com
Subject: Re: Wilcox TO # 128 RI Approach

1). I would rather that surface horizon be 0-6".

2). I don't believe dioxin/furans will drive risk even if they were present. I'm ok with eliminating them. However you may need some data to speak to potential human exposure. That is a "Phil-call."

3). Sounds good.

4). See #1.

Sent from my iPhone

On Mar 22, 2016, at 11:26 AM, Coltrain, Katrina <coltrain.katrina@epa.gov> wrote:

Phil/Todd/Barry, we need some input on a few things in order to move forward with the sampling designs. Please see the questions below. Thanks

Teri/Christina, please correct any errors or add additional information.

Phil/Barry-----

1. Soil Horizons for Risk Assessment
 - a. The proposal is 0-1', 1-2', and 4-5' and if refusal is deeper than 5', take a sample at the bottom of the core. The samples collected from each foot will be homogenized. The sample jar will be filled from the homogenized soil—prior to each scoop the soil will be homogenized, separated into quarters, aliquots taken from each quarter, then homogenized again, separated into quarters with aliquots taken from each quarter—so on until the jar is full.
 - b. Can this be used to evaluate risk? Do you see a problem with this approach?
2. Dioxans/Furans
 - a. These contaminants are not associated with the type of facility or waste at this site. These will not be analyzed. Do you see this as a problem?
3. Pesticides/PCBs
 - a. These contaminants are not associated with the type of facility or waste at this site. We did not find these in the residential soil samples collected, nor did they find PCBs in any of the prior site inspection/investigation sampling. We think that these at least need to be included as part of the process area sampling and suggest that they be sampled at 5%. Do you see this as a problem?

4. Background
 - a. Samples collected from 0-1 foot. The soil will be homogenized and sampled as presented under #1.

Todd-----

1. Residential Wells
 - a. Do you have the data in a spreadsheet that can be shared?
 - b. Do you have any information on the well logs/GPS/construction etc?
2. Church Well
 - a. Do you have any information on the well logs/construction etc? I think we asked already and did not receive anything.
3. Tank Farm Wells
 - a. There is one well at the northeast corner dug for residential use. Any information on it?
 - b. There is one well in the south central area that we think may have been a facility well but is clogged. Is this correct? Any other information?

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From: Coltrain, Katrina

Sent: Tuesday, March 15, 2016 3:24 PM

To: Teri Mcmillan (tmcmillan@eaest.com) <tmcmillan@eaest.com>; Christina Radu (cradu@eaest.com) <cradu@eaest.com>; Luis Vega (lvega@eaest.com) <lvega@eaest.com>

Cc: Todd Downham <todd.downham@deg.ok.gov>; Turner, Philip <Turner.Philip@epa.gov>; 'Barry Forsythe' <barry_forsythe@fws.gov>

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Teri, please find attached my comments on the sampling approach. Additional comments from the others may be forthcoming.

thanks

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From: Coltrain, Katrina
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Subject: FW: Wilcox TO # 128 RI Approach

Team, please find the suggested approach for moving forward. Send any comments. Once we have agreement, they will work to finalize the SAP and then we can send it out to the larger group to digest.

thanks

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Subject: Wilcox TO # 128 RI Approach

Katrina,

Please find the attached RI phased approach for review. If we can get consensus on the approach to the RI then we can start refining the elements and complete the SAP.

If you have any questions please let me know.

Thanks,

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